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| 09/698,219      | 10/30/2000  | Taichi Kobayashi     | Q61467              | 6374             |

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SUGHRUE, MION, ZINN, MACPEAK & SEAS  
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EXAMINER

GOFF II, JOHN L

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 04/01/2003

10

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/698,219

Applicant(s)

KOBAYASHI ET AL.

Examiner

John L. Goff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 12-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This action is in response to Amendment A filed on 1/23/03. In view of applicant's arguments the previous 35 U.S.C 102 and 103 rejections using Ryan, Sabreen, and Krause et al. are withdrawn. The previous objections to the specification have been overcome, and the previous rejections under 35 U.S.C 112 have been overcome.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### ***Claim Rejections - 35 USC § 102***

3. Claims 5-7(5) are rejected under 35 U.S.C. 102(e) as being anticipated by Krause et al. (U.S. Patent 5,958,532).

Krause et al. are directed to bonding fluoropolymer resin layers to thermosetting or thermoplastic elastomer layers wherein the fluoropolymer layers undergo corona discharge treatment in air to increase their bond strength. Krause et al. teach providing a layer of fluoropolymer resin, such as ethylene-tetrafluoroethylene (ETFE), subjecting the fluoropolymer layer to a corona discharge treatment in air, clamping the fluoropolymer layer to an elastomer layer, and heat treating the clamped layers at 180 °C for 30 minutes to cure the elastomer layer and laminate the fluoropolymer layer to the elastomer layer (Column 3 lines 64-67 and Column 5, lines 19-27 and 44-47 and Column 11, lines 3-7 and 10-12).

***Claim Rejections - 35 USC § 103***

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-4, 7(1), and 7(3) are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. (U.S. Patent 5,662,972).

Shimada et al. are directed to bonding a fluorine resin such as ETFE to a polyamide such as vinyl acetate copolymer wherein the resin is subjected to a corona discharge treatment in an inert gas atmosphere such as nitrogen to ensure strong bonding between the resin and the polyamide (Column 1, lines 15-17 and 64-66 and Column 2, lines 3 and 21-25 and Column 4, lines 5 and 6).

Regarding claims 1 and 2, Shimada et al. are silent as to the absorbance at 360 nm of the surface treated resin. However, one of ordinary skill in the art at the time the invention was made would have readily appreciated that the absorbance of the fluorine resin after being subjected to a corona discharge treatment is directly related to the intensity and duration of the treatment and to determine these treatment conditions for optimum bonding would not have required undue experimentation.

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Regarding claims 3 and 4, Shimada et al. are silent as to the oxygen concentration in the inert gas atmosphere. However, one of ordinary skill in the art at the time the invention was made would have readily appreciated that although the corona discharge treatment is performed in an inert gas atmosphere the atmosphere would contain some negligible oxygen concentration, and the claimed range of 4 to 150 ppm is a trace amount of oxygen.

6. Claims 1-4, 8, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art (Specification pages 1 and 2) in view of Shimada et al.

The admitted prior art is directed to a laminate for use in bonding to the surface of a building material or a solar cell for surface protection, impartment of a stain resistance, sealing and the like. The admitted prior art teaches the laminate comprises a fluorine resin bonded to a crosslinking elastic adhesive body such as ethylene-vinyl acetate copolymer (EVA) or the like. The admitted prior art teaches subjecting the fluorine resin to a corona discharge process to ensure strong bonding of the resin with the crosslinking adhesive body (Specification page 1, lines 22-37 and page 2, lines 1-7). The admitted prior art is silent as to the atmosphere for performing the corona discharge process. One of ordinary skill in the art at the time the invention as made would have readily appreciated performing the treatment process taught by the admitted prior art in an inert atmosphere such as nitrogen as it was well known in the art to subject a fluorine resin to a corona discharge treatment in an inert atmosphere such as nitrogen to effect a strong bond between the resin and an elastomer as shown for example by Shimada et al.

Shimada et al. are directed to bonding a fluorine resin such as ETFE to a polyamide such as vinyl acetate copolymer wherein the resin is subjected to a corona discharge treatment in an

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inert atmosphere such as nitrogen to ensure strong bonding between the resin and the polyamide (Column 1, lines 15-17 and 64-66 and Column 2, lines 3 and 21-25 and Column 4, lines 5 and 6).

Regarding claims 1, 2, and 8, the admitted prior art as modified by Shimada et al. are silent as to the absorbance at 360 nm of the surface treated resin. However, one of ordinary skill in the art at the time the invention was made would have readily appreciated the absorbance of the fluorine resin after being subjected to a corona discharge treatment is directly related to the intensity and duration of the treatment and to determine these treatment conditions for optimum bonding would not have required undue experimentation.

Regarding claims 3, 4, and 8, the admitted prior art as modified by Shimada et al. are silent as to the oxygen content of the inert gas atmosphere. However, one of ordinary skill in the art at the time the invention was made would have readily appreciated that although the corona discharge treatment is performed in an inert gas atmosphere the atmosphere would contain some negligible oxygen concentration, and the claimed range of 4 to 150 ppm is a trace amount of oxygen.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art and Shimada et al. as applied above in paragraph 6, and further in view of Krause et al.

The admitted prior art and Shimada et al. teach all of the limitations in claim 6 as applied above except for a teaching of when the elastic adhesive body is crosslinked. Absent any unexpected results, one of ordinary skill in the art at the time the invention was made would have readily appreciated crosslinking the adhesive body taught by the admitted prior art as modified by Shimada et al. after bonding with the fluorine resin as it was well known in the art to do so as shown for example by Krause et al.

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Krause et al. are directed to bonding fluoropolymer resin layers to thermosetting or thermoplastic elastomer layers wherein the fluoropolymer layers undergo corona discharge treatment in air to increase their bond strength. Krause et al. teach providing a layer of fluoropolymer resin, such as ethylene-tetrafluoroethylene (ETFE), subjecting the fluoropolymer layer to a corona discharge treatment in air, clamping the fluoropolymer layer to an elastomer layer, and heat treating the clamped layers at 180 °C for 30 minutes to cure the elastomer layer and laminate the fluoropolymer layer to the elastomer layer (Column 3 lines 64-67 and Column 5, lines 19-27 and 44-47 and Column 11, lines 3-7 and 10-12).

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art and Shimada et al. as applied above in paragraph 6, and further in view of Kataoka et al. (U.S. Patent 6,307,145).

The admitted prior art and Shimada et al. teach all of the limitations in claim 10 as applied above except for a teaching of how the elastic adhesive body (EVA) is crosslinked. One of ordinary skill in the art at the time the invention was made would have readily appreciated crosslinking the elastic adhesive body taught by the admitted prior art as modified by Shimada et al. using a radical initiator such as organic peroxide as it was well known in the art to crosslink EVA using a radical initiator as shown for example by Kataoka et al.

Kataoka et al. are directed to a solar cell including a layer of crosslinked EVA. Kataoka et al. teach the EVA is crosslinked with an organic peroxide to prevent deformation or creep in the EVA at high temperatures (Column 6, lines 1-3 and 12-15).

*Response to Arguments*

9. Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection. Applicant argues Krause et al. disclose treatment in an autoclave or oven to cure the elastomer, not for a treatment of the surface of the fluoropolymer. It is noted Krause et al. teach a heat treatment step to cure the elastomer wherein inherently the surface of the fluoropolymer is subjected to the heat treatment. Further, it is noted claim 5 does not exclude the heat treatment step occurring during contacting/bonding of the fluoropolymer layer with another layer. Regarding claims 1 and 2, it is noted Shimada et al. and the admitted prior art as modified by Shimada et al. are silent as to the absorbance at 360 nm of the surface treated fluorine resin. However, the specification appears only to require a corona discharge treatment in a nitrogen atmosphere under routine conditions to give fluorine resin an absorbance in the claimed range (Specification page 25, lines 2-8), and this process is shown by Shimada et al. It is also noted the specification shows no examples of a surface treated fluorine resin having absorbance values less than the claimed range.

*Conclusion*

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **703-305-7481**. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on 703-308-2058. The fax phone numbers for the



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organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



John L. Goff  
March 28, 2003



Michael W. Ball  
Supervisory Patent Examiner  
Technology Center 1700